



DIVISION OF CONSOLIDATED LABORATORY SERVICES

PROTOCOL FOR THE CERTIFICATION OF LABORATORIES PERFORMING CALIBRATION OF TUNING FORKS USED FOR TESTING THE ACCURACY OF TRAFFIC RADAR EQUIPMENT

AUGUST 2003

CERTIFICATION OF LABORATORIES

PERFORMING TUNING FORK CERTIFICATION TESTING

Signatures

Date

Prepared by: _____ November 24, 2003

R. Tracy Hunter
Certification Officer, DCLS

Revised: _____

Approved by: _____

A. Grier Mills
Director, Bureau of Customer Services

ANNUAL REVIEWSignatureDate

Reviewed by: _____

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**PROTOCOL FOR THE
CERTIFICATION OF LABORATORIES
PERFORMING TUNING FORK CERTIFICATION TESTING**

I. PURPOSE

The purpose of this protocol is to prescribe certification criteria for laboratories performing calibration of tuning forks used for testing the accuracy of traffic radar equipment under Section 46.2-882 and 19.2-187 of the Code of Virginia.

II. SCOPE

Tuning forks must be calibrated at least once every six months by the manufacturer's qualified laboratory or other laboratories certified by the Division of Consolidated Laboratory Services (DCLS). Tuning fork laboratories must be certified by DCLS at least once every three years. This document describes the DCLS protocols for the utilization of on-site laboratory assessments to certify, continue certification, and re-certify those laboratories performing tuning fork certification testing.

III. REQUIREMENTS FOR CERTIFICATION

1. Initial Application - Requests for certification will be made to DCLS in writing. DCLS will send an application packet to each requesting laboratory.
2. The laboratory will submit a Quality Assurance/Quality Improvement (QA/QI) Plan with the application packet. The following will be addressed in the QA/QI Plan:
 - a. Standard Operating Procedures: Summary of procedure being performed, equipment being used, methods, written step-by-step procedure being followed, calculations and examples, adjustments (if any), and references.
 - b. Rejection Policy.
 - c. Annual Review.
 - d. Records Retention Policy.
 - e. List of Personnel.
 - f. Training Records.

- g. Certificate Form.
 - h. Written procedure describing your process if a tuning fork fails certification testing.
3. Application Review - The application packet and the QA/QI Plan will be reviewed by the DCLS Certification Officer. Based on the review of the application, one of the following responses will be initiated:
- a. Contact the laboratory by telephone to correct minor problems or obtain clarification. Initial and date the changes in the application agreed to by the laboratory. This may be done by Fax, as long as a clear copy is received by mail.
 - b. Return the application along with a letter identifying the additional corrections that are required.

IV. FEE

An application fee of two hundred dollars (\$200.00), payable to the Treasurer of Virginia, will accompany the application packet and is non-refundable. The laboratory will attach the check to Certification Fee Document and mail them to: Attn.: Cashier, DGS Fiscal Services, P.O. Box 267, Richmond, VA 23202-0267. A certification renewal fee, of two hundred dollars (\$200.00) is payable every three years.

V. ON-SITE INSPECTION AND REPORT

An on-site inspection is scheduled after the laboratory has successfully completed the requirements for Certification. The laboratory operations, equipment, personnel, standard operating procedures and records will be inspected. Laboratory personnel will be asked to demonstrate certification tests during each on-site inspection. Following each on-site inspection a comprehensive report will be prepared by the DCLS Certification Officer. The inspection report will document any deficiencies or offer recommendations. The laboratory seeking certification has thirty (30) days to reply to the deficiencies on the report. An on-site inspection will be conducted at each laboratory at least once every three years. DCLS reserves the right to perform interim announced and/or unannounced inspections. If on-site inspections are refused, DCLS can suspend or revoke certification.

VI. CERTIFICATE

A certificate is issued for a three-year period for each certified laboratory.

VII. MAINTENANCE OF CERTIFICATION

The laboratory will notify DCLS within thirty (30) days of changes in personnel, procedures, equipment or laboratory location.

VIII. RENEWAL OF CERTIFICATION

Renewal invoices will be sent out three months before the expiration of the certificate. Payment is due at least one month before the certification anniversary date. Failure to remit payment on time will delay re-certification and may result in the laboratory being placed on inactive status.

IX. APPENDICES

- A. Application Packet
- B. Checklist 3 - On-site Inspection
- C. On-Site Inspection/Certification Letters

Letter 1 – Notification of On-site Inspection

Letter 2 - On-site Inspection Report Cover Letter

Letter 3 - Certification Renewal Fee Document

APPENDIX A**APPLICATION LETTER**

Dear _____:

We are forwarding for your use an application packet for the certification of tuning forks. Please complete and return this application packet with your Quality Assurance/Quality Improvement (QA/QI) Plan.

Send the application fee of two hundred dollars (\$200.00), payable to the Treasurer of Virginia, with the enclosed Form DGS-21-099 to:

ATTN: Cashier
Commonwealth of Virginia
DGS Fiscal Services
P.O. Box 267
Richmond, VA 23202-0267

If you have further questions, please call me at 804-648-4480 ext 382.

Very truly yours,

R. Tracy Hunter
Certification Officer

APPENDIX A (cont.)

DGS-DCLS
Bureau of Customer Services
Form 1 - Personnel List

Laboratory:_____

Street:_____

City:_____

Zip Code:_____

Contact Person:_____

Phone/Fax Numbers:_____

Name and Title	Education Level Major/Degree	Specialized Training/Experience

APPENDIX A (cont.)

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF GENERAL SERVICES
DIVISION OF CONSOLIDATED LABORATORY SERVICES**

INVOICE #: TFC 0001

(BILLING ADDRESS):

Date:

Dear Customer,

Please enclose your check for \$200 as renewal fee for Tuning Fork Certification. Please make your check payable to Treasurer of Virginia. Be sure to mark your Invoice Number clearly on your check. Use the enclosed pre-addressed envelope to mail your check to:

Attn: Cashier
Commonwealth of Virginia
Dept. of General Services
Fiscal Services
P. O. Box 267
Richmond, VA 23202-0267

If your mail is delivered by a **courier service**, please have the courier deliver the mail to:

Attn: Cashier
Commonwealth of Virginia
Dept. of General Services
Fiscal Services
202 Ninth Street, Room 220
Richmond, VA 23219

DGS FISCAL USE: (Please stamp page
with date received)

Check #:

P.O.#:

Amount

Paid

DGS-21-099 (REV. 11/97) TUNIFORK

APPENDIX A (cont.)

**GUIDELINES FOR THE PREPARATION OF THE
QUALITY ASSURANCE/QUALITY IMPROVEMENT (QA/QI) PLAN**

- I. The QA/QI Plan will include detailed statements on the following:
 - a. List of all testing equipment by manufacturer, model number, and serial number used in the calibration procedure.
 - b. Statement that will specify the nationally recognized calibration tone source by name, address and telephone number.
 - c. Statement that will specify the accuracy, range and reproducibility of all equipment.
 - d. Statement that will specify the rejection policy and labeling of tuning forks to be calibrated.
 - e. Detailed procedure used to standardize equipment, calibrate tuning forks and report data.
 - f. Reference copy of the certificate sent to customers as it relates to tuning fork calibration.
 - g. List of personnel performing tuning fork calibration, training and experience.
- II. A copy of the QA/QI Plan will be sent to DCLS with the application packet.
- III. The QA/QI Plan will be reviewed. Recommendations will be communicated to the laboratory. A copy of the approved QA/QI Plan will remain on file at DCLS.

APPENDIX B

DGS-DCLS
Bureau of Customer Services

Checklist 3 – On-site Inspection

On-site Inspection for Laboratories Involved in Tuning Fork Calibration

Laboratory	
Street	
City	
Zip Code	
Contact Person	
Telephone No.	
Fax No.	
Date	

CHECKLIST 3 – ON-SITE INSPECTION

IV. EQUIPMENT

Verify equipment and signal source:

V. PERSONNEL

Verify authorized certification personnel:

VI. SAMPLE HANDLING

Log-in procedure: In ink.

Bound log book or secure computer log in:

Sample Storage:

Sample Tracking:

VII. SAMPLE OBSERVATION RECORD

Verify procedure – Performed as written:

Calibration of frequency counter – How often?

Calibration of check standards - Designate a minimum of two (high and low) tuning forks as check standards. Maintain records of observations for the check standards.

Observations – A minimum of 2 observations to be taken to verify the stability of tuning forks. Maintain records of observations:

Temperature recorded – Before and at end of observation within 1° C:

Thermometer calibration:

VIII. OBSERVATION DATA REVIEW

Calculations reviewed:

APPENDIX B (cont.)**CHECKLIST 3 - ON-SITE INSPECTION****VI. CERTIFICATE**

Completed certificate reviewed for transcription errors:

Certificate includes information on temperature and gun mate:

VII. QA/QI Manual - Elements of QA/QI Manual

Detailed methodology:

Summary - Tone source:

Equipment - Manufacturer; model number; serial number:

Procedure - Written as performed:

Calculations:

Adjustments:

Assignment of Uncertainty - Accuracy, range and reproducibility of equipment:

Rejection policy:

Reference copy of certification form:

List of personnel:

Training record:

Record retention:

Reviewed and signed annually:

Updates sent to DCLS:

APPENDIX B (cont.)

CHECKLIST 3 - ON-SITE INSPECTION

VIII. DATA VALIDATION

Calculate the mean and standard deviations for a minimum of twenty observations. Use the mean and standard deviations to check validity of laboratory data:

QC review performed:

IX. PREVENTIVE MAINTENANCE

Instrument maintenance log maintained:

X. RETENTION RECORDS

Maintenance log retained for the lifetime of the instrument:

Calibration records retained for the lifetime of the instrument:

Sample observation records retained for the lifetime of the tuning forks or a minimum of three years:

XI. CALIBRATION OF STANDARD TUNING FORKS

Technician calibration data acceptable:

APPENDIX C

Letter 1

Dear _____:

An on-site inspection of your laboratory for tuning fork certification has been scheduled for _____. The inspection will start at approximately 10:00 a.m. Please send a detailed set of directions to your laboratory.

If you have further questions, please call me at 804-648-4480 ext. 382...

Sincerely,

R. Tracy Hunter
Certification Officer

Letter 2

Dear _____:

Enclosed is a copy of the report of the on-site inspection of _____ conducted on _____ for tuning fork calibration. This inspection was conducted to determine the laboratory's compliance with the Code of Virginia, Section 46.2-882 as amended.

This report addresses the deviations found during the inspection. The same deviations were discussed during the exit interview. A letter to confirm and document the corrections of the deviations must be received by this office within sixty (60) days after receipt of this correspondence. We reserve the option to conduct on-site inspections at any time and to submit tuning fork standards for calibration.

We will be pleased to assist you where possible with any technical problems that you may have. If you want such assistance, please contact R. Tracy Hunter at 804-648-4480 ext.382.

Sincerely yours,

James L. Pearson, Dr.P.H., BCLD
DGS Deputy Director for Consolidated
Laboratories

APPENDIX C (cont.)

Letter 4

Dear _____:

The schedule for certification renewal for tuning forks will change to coincide with the calendar year starting January 1, _____. We require your laboratory's certification fee of \$200, payable to the Treasurer of Virginia, on or before December 31, _____. The certification fee is valid for three years.

Also, to maintain certification, please provide us the item(s) marked below:

_____ A copy of your tuning fork Certificate of Accuracy.

_____ QA Plan with annual review and signature.

_____ Personnel list.

Attach your check with the enclosed Form DGS-21-099. Use the enclosed pre-addressed envelope to mail your check.

Mail the other marked item(s) to me at the address shown on the letter head on or before _____. We will notify you at least two weeks before the on-site inspection of your laboratory. If you have further questions, please call me at 804-648-4480 ext 382.

Sincerely,

R. Tracy Hunter
 Certification Officer